

## **Exercise Sheet 05**

(Datalog Fixpoint Semantics)

**Please note:** The exercises will be neither collected, nor corrected, or graded.

### **Exercise I**

Given the following Datalog<sup>neg</sup> program:

$q(1, 2).$

$q(2, 3).$

$s(1, 3).$

$r(X, Y) :- s(X, Y).$

$p(X, Y) :- q(X, Y), \neg r(X, Y).$

$p(X, Y) :- q(X, Y), \neg s(X, Y).$

$p(X, Y) :- Y = W, p(X, Y), p(W, Z).$

- Transform the program to relational algebra by providing  $\text{eval}(p)$  and  $\text{eval}(r)$ .
- Compute the fixpoint relations by using your results from I.